

CLAIMS

1. Multi-purpose operating unit comprising an internal-combustion engine (2), an electric generator (10) operated by said motor, a first pump (17) for supplying water coming from outside the unit, filtering means (8, 9) for treating the water supplied from outside the unit, a second pump (33) for feeding the water to said filtering means, and a water flow path extending between said first and second pump (17, 33), characterized in that along said path the water flow is split so as to maintain predefined pressure conditions at the intake of the second pump (33).

2. Operating unit according to Claim 1, comprising a discharge branch (R1) which departs from said water flow path and which has, arranged along it, a valve (32) that regulates the water flow inside said branch so as to control the pressure at the intake of the second pump (33).

3. Operating unit according to Claims 1 and 2, wherein the water flow which reaches the second pump (33) is greater than that which passes through the discharge duct (R1).

4. Operating unit according to Claims 1 to 3, wherein along the path between the first and the second pump (17, 33) the water exchanges heat to cool the engine, and wherein said discharge branch (R1) departs from the water flow path at a point downstream of heat exchange with the engine.

5. Operating unit according to Claim 4, wherein the water along its flow path cools a manifold (19) for the fumes of the engine (2).

6. Operating unit according to Claim 5, wherein the water before the heat exchange for cooling the engine (2), cools a condenser (15) of an air-conditioning apparatus associated with the unit.

7. Operating unit according to the preceding claims, wherein the filtering means comprises osmotic membranes, filtration membranes (8, 9) or the like.

8. Operating unit according to Claim 7, comprising a return branch (R2) for a brine coming out from the membranes (8, 9), into which said discharge branch (R1) merges.

9. Operating unit according to Claim 8, wherein said return branch (R2) terminates in connection with an exhaust (20) of the engine (2).

10. Operating unit according to Claim 9, wherein the return branch (R2) of the brine contains an adjustable valve (38) that maintains a predefined pressure difference between upstream and downstream of the membranes (8, 9).

11. Operating unit according to the preceding claims, wherein the first pump (17) is of the dynamic type while the second pump (33) is of the volumetric type.

12. Operating unit according to Claim 11, wherein both the first and the second pump (17, 33) are operated by the engine (2).

13. Operating unit according to Claim 12, wherein the second pump (33) which supplies the membranes (8, 9) is switched off when the electric power produced by the generator (11) is greater than a predefined level.

14. Operating unit according to the preceding

claims, wherein the electric generator (10) is cooled by means of ventilation with air cooled by heat exchange with a first evaporator (11) of the air-conditioning apparatus associated with the unit.

15. Operating unit according to Claim 14, wherein the air-conditioning plant comprises a compressor (40) operated by the internal-combustion engine (2).

16. Operating unit according to the preceding claims, wherein the circuit containing the liquid for cooling the engine (2) comprises an expansion tank (70) incorporated in the exhaust (20).

17. Operating unit according to the preceding claims, wherein both ends of the shaft of the internal-combustion engine (2) are provided with drive means (35, 36, 41, 42, 47; 52, 53, 54) for operating one or more of the following: the electric generator (10), the compressor (40) of the air-conditioning apparatus, the first and second pump (17, 33).

18. Operating unit according to Claim 17, wherein said drive means comprises belts (35, 41, 53) and electromagnetic pulleys (36, 42, 52, 54).

19. Operating unit according to the preceding claims, wherein the internal-combustion engine (2) is supported by a base (3) provided with a seat (6) for housing the electric generator (10) and said first evaporator (11) of the air-conditioning apparatus.

20. Operating unit according to Claim 19, wherein the seat (6) housing the generator (10) also forms its casing which contains the windings.

21. Operating unit according to Claim 19, wherein the base (3) is made with metal sections.

22. Operating unit according to Claim 20, comprising a pan (80) for the oil lubricating the engine (2), containing a collection sump (85) having a depth substantially equal to the height of the base (3) of the engine.

23. Operating unit according to the preceding claims, comprising an external casing (90) with an opening (91) in a wall for the entry of air, said wall containing a coiled channel (98) communicating with a Helmholtz resonator (100) associated with the air intake of the engine (2).

24. Operating unit according to the preceding claims, comprising an exhaust (20) with a manifold (19) for fumes having an external jacket (60) inside which water from the outside circulates and a fume evacuation duct (65) surrounded by a discharge pipe (66) which defines a cavity around it, from where the water circulating inside the unit is discharged.